National Institute of Environmental Health Sciences

Including the urban heat island in spatial heat health risk assessment strategies: A case study for Birmingham, UK

Author(s): Tomlinson CJ, Chapman L, Thornes JE, Baker CJ
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Abstract:

BACKGROUND: Heatwaves present a significant health risk and the hazard is likely to escalate with the increased future temperatures presently predicted by climate change models. The impact of heatwaves is often felt strongest in towns and cities where populations are concentrated and where the climate is often unintentionally modified to produce an urban heat island effect; where urban areas can be significantly warmer than surrounding rural areas. The purpose of this interdisciplinary study is to integrate remotely sensed urban heat island data alongside commercial social segmentation data via a spatial risk assessment methodology in order to highlight potential heat health risk areas and build the foundations for a climate change risk assessment. This paper uses the city of Birmingham, UK as a case study area. RESULTS: When looking at vulnerable sections of the population, the analysis identifies a concentration of "very high" risk areas within the city centre, and a number of pockets of "high risk" areas scattered throughout the conurbation. Further analysis looks at household level data which yields a complicated picture with a considerable range of vulnerabilities at a neighbourhood scale. CONCLUSIONS: The results illustrate that a concentration of "very high" risk people live within the urban heat island, and this should be taken into account by urban planners and city centre environmental managers when considering climate change adaptation strategies or heatwave alert schemes. The methodology has been designed to be transparent and to make use of powerful and readily available datasets so that it can be easily replicated in other urban areas.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3141360

Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat, Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : United Kingdom

Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Other Vulnerable Population: Pre-existing medical conditions; High-rise dwelling; High population density

Resource Type:

format or standard characteristic of resource

Research Article, Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content